

**FREE BIRDS AREN'T FAT: WEIGHT GAIN IN CAPTURED
WILD PIGEONS MAINTAINED UNDER
LABORATORY CONDITIONS**

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Nine feral pigeons, 5 from an urban setting and 4 from a rural setting, were captured and maintained for 42 days under free-feeding conditions comparable to those arranged for laboratory subjects. On average, birds increased their body weights by 17% over this period. The range of increase across birds was 9 to 30%. These findings suggest that the food deprivation arranged for laboratory pigeons, which is characteristically 80% of free-feeding weights, may in some sense be less severe than it first appears.

Key words: food deprivation, body weight, ethical issues, pigeons

When food is used as a reinforcer for non-human subjects, it is common to maintain the subjects in a state of food deprivation. In many cases, this is arranged by limiting access to food so that the subject's weight is held constant at a specified percentage of its free-feeding weight. When pigeons are used as subjects, they are usually maintained at around 80% of free-feeding weights. For example, nine studies published in the November 1989 issue of the *Journal of the Experimental Analysis of Behavior* used pigeons as subjects. The birds were maintained at approximately 80% of their free-feeding weights in eight of these studies, and at 85% in one.

To a layperson, and especially one critical of research with nonhumans, depriving a bird to 80% of its free-feeding weight may seem inhumane. If, they argue, *my* body weight were reduced by 20%, I'd be starving and miserable. Barring an obese speaker, the argument has some face validity. But, as Hineline (1986) notes, "If applied to humans, the reference weights would be determined by providing continuous and easy access to an open, well stocked refrigerator and not much else" (p. 124). It can be argued that laboratory conditions artificially increase free-feeding weights by providing essentially unlimited calories, minimizing the number of calories used to maintain body heat, and rendering flight impossible. The result is fat birds with inflated free-feeding weights that must be considered in evaluating the actual meaning of deprivation to 80%.

One way to test the hypothesis that housing

under free-feeding laboratory conditions increases body weights relative to "normal" (i.e., those conditions that would be observed in the birds' usual ecological niche) is to ascertain whether captured wild pigeons exposed to free-feeding laboratory conditions gain weight. This was done in the present study.

METHOD

Subjects and Apparatus

Nine free-living feral pigeons, all of which appeared to the experimenters to be adults, were captured by hand. Five of the birds (numbered 1 through 5) were captured on a mall in downtown Kalamazoo, Michigan, an urban setting in which the birds were fed regularly (primarily popcorn, bread, and pastries) by shoppers and passers-by. The other 4 birds (numbered 6 through 9) were captured from a barn loft in a rural setting 35 miles northeast of Kalamazoo. The barn was within one-half mile of an abundant supply (tons) of corn, soybeans, small grains, and ground animal feed to which the birds had access.

Procedure

All birds were captured on October 31, a date at which food appeared to be abundant in both the rural and the urban setting. Harvests were complete (or nearly so) in the country, making grains and seeds available; birds were still being fed in the city; and clement weather allowed for easy feeding in both. After the birds were captured, they were maintained under conditions designed to resemble closely

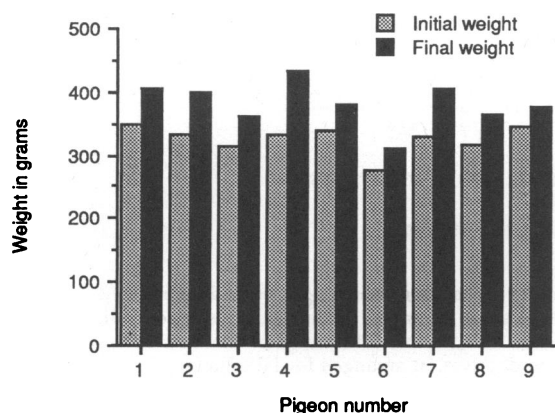


Fig. 1. Body weights of each of 9 feral pigeons when first captured from an urban (Pigeons 1 through 5) or rural (Pigeons 6 through 9) setting and after 42 days of exposure to free-feeding laboratory conditions.

those to which free-feeding laboratory birds are exposed. Each pigeon was housed individually in a stainless steel cage (22.9 cm wide, 29 cm high, and 38.1 cm long) in which water, grit, and food (Purina pigeon grain) were freely available. The cages were placed in temperature-controlled rooms (70 °F) maintained under a 12:12 hr light/dark cycle. Each bird was weighed before being placed in its holding cage and at 2-day intervals over a 42-day period. At the end of this time, they were taken to the point of capture and released.

RESULTS AND DISCUSSION

All birds gained weight over the 6 weeks. This is apparent in Figure 1, which shows the weight of each bird during the first and last weigh-in. There were, however, appreciable differences across birds in the magnitude of

the increase. If the increase in body weight is expressed as percentage change from the initial level, relative increases across Birds 1 through 9, respectively, were 16, 20, 15, 30, 11, 13, 23, 14, and 9%.

These data suggest that free-feeding laboratory conditions are sufficient to produce sizeable weight gains in feral pigeons over a relatively short period. Moreover, there was no indication that the weight gain had stopped after 42 days. Birds were released at that time not because of a failure to gain more weight but because of a desire to minimize their exposure to conditions that might reduce their probability of survival when returned to the wild. Had maximizing weight gain been the objective, birds could have been captured at a time when food was scarce and caloric expenditure maximal (i.e., in late winter), then held for several months. Such prolonged holding under free-feeding conditions does not appear to be rare in behavioral laboratories.

The present findings are significant in suggesting that the food deprivation arranged for laboratory pigeons may in some sense be less severe than it first appears. This does not, however, necessarily indicate the deprivation to 80% of free-feeding body weights is ethically acceptable or that the general treatment of pigeons is adequate. Those are issues for other forums.

REFERENCE

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Received January 2, 1990
Final acceptance January 2, 1990